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ABSTRACT

A study reviewed outcomes of 34 prevention programs for children (ages 5-18) that produce improvements in specific psychological symptoms or in factors directly associated with increased risk for child mental disorders. The following conclusions can be made regarding validated programs: (1) short-term preventive interventions produce time-limited benefits, at best, with at-risk groups whereas multi-year programs are more likely to foster enduring benefits; (2) preventive interventions may effectively operate throughout childhood when developmentally appropriate risk and protective factors are targeted; (3) preventive interventions are best directed at at-risk and protective factors rather than at categorical problem behaviors; (4) interventions should be aimed at multiple domains, changing institutions and environments as well as individuals; (5) prevention programs that focus independently on the child are not as effective as those that simultaneously educate the child and instill positive changes across both the school and home environments; (6) there is no single program component that can prevent multiple high-risk behaviors, a package of coordinated, collaborative strategies and programs is required; and (7) in order to link to other community care systems and create sustainability for prevention, programs will need to be integrated with systems of treatment. (Contains 10 references.) (CR)

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Effectiveness of Prevention Programs for Mental Disorders in School-Age Children

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Introduction

In the last decade the prevention of mental disorders in children has become a growing priority for federal agencies in regard to policy, practice, and research. This priority is reflected in the recent reports of the Institute of Medicine (IOM, 1994) as well as the National Institute of Mental Health (NIMH, 1993; 1998). Interest in the prevention of mental disorders in children is also reflected in the goals set for our nation's health; an objective of Healthy People 2000 is to reduce the prevalence of mental health disorders in children and adolescents (DHHS, 1991). This objective shows the nation's growing concern that increasing numbers of children and adolescents are having difficulty managing the challenges of development. It is estimated that between 12% and 22% of America's youth under age 18 are in need of mental health services (National Advisory Mental Health Council, 1990). In addition to the personal suffering experienced by children with emotional or behavioral problems and their families, it is estimated that the yearly U.S. cost of mental illness is greater than 80 billion dollars.

The Prevention Research Center for the Promotion of Human Development, at Penn State University, conducted a review for the Federal Center for Mental Health Services (CMHS/SAMHSA) to:

- identify critical issues and themes in prevention research with school-age children and families,
- identify universal, selective and indicated programs that reduce symptoms of both externalizing and internalizing disorders,
- summarize the state-of-the art programs in the prevention of mental disorders in school-age children,
- identify elements that contribute to program success, and
- provide suggestions to improve the quality of program development and evaluation.

Method

The scope of interest for this review included prevention programs for children ages 5 to 18 that produce improvements in specific psychological symptoms or in factors directly associated with increased risk for child mental disorders. Programs were excluded if they produced outcomes *solely* related to substance abuse, sexuality or health promotion or positive youth development. Other recent federal reports review prevention programs that focus on promoting positive youth development and substance abuse prevention (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 1998; Tobler & Stratton, 1998).

To be included as effective programs in our report, evaluations required well-structured study designs, clear specification of participants, a written manual that specified the intervention procedures, and outcome effects on measures related to mental disorder. Given the quality-assurance inherent in the peer review process, the search primarily focused on refereed professional journals. However, government reports, meta-analyses, reviews, annotated bibliographies, websites, and relevant books were also reviewed. The review led to the identification of over 130 programs. Of those, 34 met the criteria discussed above and thus are included in this report (See Table 1).

Results & Discussion

Public health models have long based their interventions on reducing risk factors for disease or disorder as well as on promoting processes that protect against risk. Just as successful prevention models for both heart and lung disease have focused on reducing risk factors and increasing protective factors, research on developmental processes has focused the field of preventive mental health on understanding how risk and protective factors operate, and can be modified, to alter the incidence and prevalence of mental disorders in childhood.

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Research on the development of mental disorders has led to the following four conclusions. First, development is complex and both disorder and competence are multiply determined: it is unlikely that there is a single cause of, or risk factor for, any disorder (disruptive disorders, depression or other affective disorders). Second, risk factors include biological, social, and ecological factors in the child, the family, and other social contexts. Thus, it is doubtful that most childhood behavioral disorders can be eliminated by treating causes that are purported to reside in the child alone. Third, it is apparent that many developmental risk factors are not disorder-specific, but may relate instead to a variety of maladaptive outcomes. Fourth, a focus on increasing protective factors may lead to both lower incidence of mental disorder as well as improving the overall competence of children.

An understanding of "generic" risk factors related to maladaptive child outcomes has led to a strategy of targeting multiple factors simultaneously in prevention models. As a result, prevention efforts that focus on reducing risk factors and increasing protective factors may have direct effects on diverse outcomes. Such interventions may have the dual goals of reductions in mental disorders and the promotion of healthy developmental outcomes.

Our review concludes that there is clear evidence that important and meaningful progress has been made in preventive intervention with school-aged children during the last decade. Thirty-four different programs were found to reduce psychological symptoms or related behaviors in school-aged children. This good news shows the potential promise of widespread prevention programs to reduce mental disorders in childhood in a manner similar to what our nation has done to reduce heart disease and cancer. Advances in theory, program development, and scientific evaluation have led to important new findings showing the promise of preventive approaches.

Implications

Over time, researchers, practitioners, and policy makers have developed a more realistic perspective on the necessary intensity and comprehensiveness of programming to prevent psychopathology and promote positive development, especially with children and adolescents growing up in high-risk environments (Panel on High-Risk Youth, National Research Council, 1993). The following conclusions can be made regarding validated programs:

- Short-term preventive interventions produce time-limited benefits, at best, with at-risk groups whereas multi-year programs are more likely to foster enduring benefits.
- Preventive interventions may effectively operate throughout childhood when developmentally-appropriate risk and protective factors are targeted. However, given the resistance to treatment of serious conduct problems, ongoing intervention starting in the preschool and early elementary years may be necessary to reduce morbidity.
- Preventive interventions are best directed at risk and protective factors rather than at categorical problem behaviors. With this perspective, it is both feasible and cost-effective to target multiple negative outcomes in the context of a coordinated set of programs.
- Interventions should be aimed at multiple domains, changing institutions and environments as well as individuals.
- Prevention programs that focus independently on the child are not as effective as those that simultaneously "educate" the child and instill positive changes across both the school and home environments. The success of such programs is enhanced by focusing not only on the child's behavior, but also on the teacher's and family's behavior, the relationship between the home and school, and the needs of schools and neighborhoods to support healthy norms and competent behavior.
- There is no single program component that can prevent multiple high-risk behaviors. A package of coordinated, collaborative strategies and programs is required in each community. For school-age children, the school ecology should be a central focus of intervention.
- In order to link to other community care systems and create sustainability for prevention, prevention programs will need to be integrated with systems of treatment. In this way,

communities can develop common conceptual models, common language, and procedures that maximize the effectiveness of programs at each level of need. Schools, in coordination with community providers, are a potential setting for the creation of such fully-integrated models. It is surprising that few comprehensive interventions have been developed and evaluated that combine school-wide primary prevention together with secondary prevention and treatment.

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Table 1
References for Identified Programs

Program (Level of Intervention)	*Reference(s)*
Adolescent Transitions Program (Indicated)	Andrews, D. W., Solomon, L. H., & Dishion, T. J. (1995). The Adolescent Transition Program: A school-based program for high-risk teens and their parents. *Education & Treatment of Children, 18*, 478-498. Dishion, T. J., & Andrews, D. W. (1995). Preventing escalation in problem behaviors with high-risk oung adolescents: Immediate and 1-year outcomes. *Journal of Consulting and Clinical Psychology, 63*, 538-548. Dishion, T. J., & Andrews, D. W., Kavanagh, K., & Soberman, L. H. (1996). Preventive interventions for high-risk outh: The Adolescent Transitions Program. In. R. DeV. Peters & R. J. McMahon (Eds.), *Preventing childhood disorders, substance abuse and delinquency* (pp. 184-214). Thousand Oaks, CA: Sage. Irvine, A. B., Biglan, A., Smolkowski, K., Metzler, C. W., & Ar , D. V. (1999). The effectiveness of a parenting skills program for parents of middle school students in small communities. *Journal of Consulting and Clinical Psychology, 67* (6), 811-825.
Anger Coping Program (Indicated)	Lochman, J. E. (1985). Effects of different treatment lengths in cognitive-behavioral interventions with aggressive boys. *Child Psychiatry and Human Development, 16*, 45-56. Lochman, J. E. (1992). Cognitive-behavioral intervention with aggressive bo s: Three- ear follow-up and preventive efforts. *Journal of Consulting and Clinical Psychology, 60*, 426-432. Lochman, J. E., Burch, P. R., Curr , J. F. & Lampron, L. B. (1984). Treatment and generalization effects of cognitive-behavioral and goal-setting interventions with aggressive bo s. *Journal of Consulting and Clinical Psychology, 52*, 915-916. Lochman, J. E., & Lampron, L. B. (1988). Cognitive behavioral interventions for aggressive bo s: Seven months follow-up effects. *Journal of Child and Adodescent Psychotherapy, 5*, 15-23. Lochman, J. E., Lampron, L. B., Gemmer, T. C., Harris, S. R., & W ckoff, G. M. (1989). Teacher consultation and cognitive-behavioral intervention with aggressive boys. *Psychology in the Schools, 26*, 179-188. Lochman, J. E. & Wells, K. C. (1996). A social-cognitive intervention with aggressive children: Prevention effects and contextual implementation issues. In. R. DeV. Peters & R. J. McMahon (Eds.), *Preventing childhood disorders, substance abuse and delinquency* (pp. 111-143). Thousand Oaks, CA: Sage.
Attributional Intervention/ Brainpower Program (Indicated)	Hudle , C. & Graham, S. (1993). An attributional intervention to reduce peer-directed aggression among African-American boys. *Child Development, 64*, 124-138. Hudle , C., & Graham, S. (1995). School-based interventions for aggressive African-American bo s. *Applied & Preventive Psychology, 4*, 185-195.
Big Brothers/Big Sisters Program (Selected)	Tierne , J. P., Grossman, J. B., & Resch, N. L. (1995). Making a difference: An impact stud of Big Brothers/Big Sisters. Philadelphia, PA: Public/Private Ventures. Grossman , J. B. & Tierne , J. P. (1998). Does mentoring work? An impact stud of the big brothers big sister program. *Evaluation Review, 22*, 403-426.
Child Development Project (Universal)	Battistich, V., Schaps, E., Watson, M., & Solomon, D. (1996). Prevention effects of the Child Development Project: Early findings from an ongoing multisite demonstration trial. *Journal of Adolescent Research, 11*, 12-35. Solomon, D., Watson, M., Battistich, V., Schaps, E., & Delucchi, K. (1996). Creating classrooms that students experience as communities. *American Journal of Community Psychology, 24*, 719-748. Watson, M., Battistich, V., & Solomon, D. (1997). Enhancing students' social and ethical development in schools: An intervention program and its effects. *International Journal of Educational Research, 27*, 571-586. Solomon, D., Watson, M., Delucchi, K., Schaps, E., & Battistich, V. (1988). Enhancing children's prosocial behavior in the classroom. *American Educational Research Journal, 25*, 527-554.
Children of Divorce Intervention Program (Selected)	Alpert-Gillis, L. J., Pedro-Carroll, J., & Cowen, E. L. (1989). The children of divorce intervention program: Development, implementation, and evaluation of a program for oung urban children. *Journal of Consulting and Clinical Psychology, 57*, 583-589. Pedro-Carroll, J. L., Alpert-Gillis, L. J., & Cowen, E. L. (1992). An evaluation of the efficac of a preventive intervention for 4th-6th grade urban children of divorce. *Journal of Primary Prevention, 13*, 115-130. Pedro-Carroll, J. L., & Cowen, E. L. (1985). The Children of Divorce Intervention Program: An investigation of the efficacy of a school-based prevention program. *Journal of Consulting and Clinical Psychology, 53*, 603-611.
Children of Divorce Parenting Program (Selected)	Wolchik, S. A., West, S. G., Westover, S., Sandler, I. N., Martin, A., Lustig, J., Tein, J., & Fisher, J. (1993). The children of divorce parenting intervention: Outcome evaluation of an empirically based program. *American Journal of Community Psychology, 21*, 293-331.
Coping With Stress Course (Selected)	Clarke, G. N., Hawkins, W., Murph , M, Sheeber, L. B., Lewinsohn, P. M., & Seele , J. R. (1995). Targeted prevention of unipolar depressive disorder in an at-risk sample of high school adolescents: A randomized trial of a group cognitive intervention. *Journal of the American Academy of Child and Adolescent Psychiatry, 34*, 312-321.
Counselors CARE & Coping & Support Training (Indicated)	Randell, B. P., Eggert, L. L., & Pike, K. C. (In press) Immediate post-intervention effects of two brief outh suicide prevention interventions. *Suicide and Life-Threatening Behavior.*
Earlscourt Social Skills Group Training (Indicated)	Pepler, D. J., King, G., Craig, W., B rd, B., & Bream, L. (1995). The development and evaluation of a multisystem social skills group training programs for aggressive children. *Child & Youth Care Forum, 24*, 297-313.

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Family Bereavement Program (Selected)	Sandler, I. N., West, S. G., Baca, L., Pillow, D. R., Gersten, J. C., Rogosch, F., Virdin, L., Beals, ' , Re nolds, K. D., Kallgren, C., Tein, J., Kriege, G., Cole, E., & Ramirez, R. (1992). Linking empiricall based theor and evaluation: The family bereavement program. *American Journal of Community Psychology, 20*, 491-521.
FAST Track (Universal, Selected & Indicated components)	Conduct Problems Prevention Research Group. (1992). A developmental and clinical model for the prevention of conduct disorders: The FAST Track Program. *Development and Psychopathology, 4*, 509-527. Conduct Problems Prevention Research Group. (1999a). Initial impact of the Fast Track Prevention trial for conduct problems: I. The high-risk sample. *Journal of Consulting and Clinical Psychology, 67*, 631-647. Conduct Problems Prevention Research Group. (1999b). Initial impact of the Fast Track Prevention trail for conduct problems: II. Classroom effect. *Journal of Consulting and Clinical Psychology, 67*, 648-657. Conduct Problems Prevention Research Group. (1998, August). *Results of the Fast Track Prevention Project. Grade 3 outcomes*. Paper presented at the American Psychological Association, San Francisco.
First Steps to Success (Selected)	Walker, H. Kavanagh, Stiller, B., Goll , A., Severson, H. H. & Feil, E. G. (1998). First step to success: An earl intervention approach for preventing school antisocial behavior. *Journal of Emotional and Behavioral Disorders, 6*, 66-80. Walker, H., Stiller, B., Severson, H. H., Feil, E. G., & Goll , A. (1998). First step to success: Intervening at the point of school entry to prevent antisocial behavior patterns. *Psychology in the Schools, 35*, 259-269.
Good Behavior Game (Universal)	Dolan, L. J., Kellam, S. G., Brown, C. H., Werthamer-Larson, L., Rebok, G. W., Ma er, L. S., Laudoff, J., Turkkan, J., Ford, C., & Wheeler, L. (1993). The short-term impact of two classroom-based preventive interventions on aggressive and shy behaviors and poor achievement. *Journal of Applied Developmental Psychology, 14*, 317-345. Kellam, S. G., & Rebok, G. W. (1992). Building developmental and etiological theor through epidemiologicall based preventive intervention trials. In J. McCord & R.E. Trembla (Eds.), *Preventing antisocial behavior: Interventions from birth through adolescence* (pp. 162-194). New York: Guilford Press. Kellam, S. G., Rebok, G. W., Ialongo, N., & Ma er, L. S. (1994). The course and malleabilit of aggressive behavior from earl first grade into middle school: Results of a developmental epidemiologicall -based preventive trial. *Journal of Child Psychology and Psychiatry, 35*, 259-281. Kellam, S. G., Ling, X., Merisca, R., Brown, C. H., & Ialongo, N. (1998). The effect of the level of aggression in the first grade classroom on the course and malleabilit of aggressive behavior into middle school. *Development & Psychopathology, 10*, 165-185.
Improving Social Awareness - Social Problem Solving (Universal)	Elias, M. J., Gara, M. A. Ubriaco, M., Rothbaum, P., Clabb , J., & Schu ler, T. (1986). Impact of a preventive social problem solving intervention on children's coping with middle school stressors. *American Journal of Community Psychology, 14*, 259-275. Elias, M. J. Gara, M. A. Schu ler, T. F. Branden-Muller, L. R., & Sa ette, M. A. (1991). The promotion of social competence: Longitudinal stud of a preventive school-based program. *American Journal of Orthopsychiatry, 61*, 409-417. Bruene-Butler, L., Hampson, J., Elias, M., Clabby, J., & Schuyler, T. (1997). The Improving Social Awareness-Social Problem Solving Project. In G.W. Albee & T.P. Gullotta (Eds.), *Primary Prevention Works*. Thousand Oaks, CA: Sage.
Interpersonal Cognitive Problem - Solving (Universal)	Shure, M. B., & Spivack, G. (1982). Interpersonal problem solving in oung children: A cognitive approach to prevention. *American Journal of Community Psychology, 10*, 341-356. Shure, M. B., & Spivack, G. (1988). Interpersonal cognitive problem solving. In R. H. Price, E. L. Cowen, R. P. Lorion, & J. Ramos-McKa (Eds.), *Fourteen ounces of prevention: A casebook for practitioners* (pp. 69-82). Washington, DC: American Psychological Association. Shure, M. B. (1979). Training children to solve interpersonal problems: A preventive mental health program. In R. F. Munoz, L. R. Snowden, and J. G. Kell (Eds.), *Social and psychological research in community centers* (pp.30-68). San Francisco: Josey-Bass. Shure, M. B. (1988). How to think, not what to think: A cognitive approach to prevention. In L.A. Bond and B.M. Wagner (Eds.), *Families in transition: Primary prevention programs that work* (pp.170-199). Newbur Park, CA: Sage. Shure, M. B. (1997). Interpersonal cognitive problem solving: Primar prevention of earl high-risk behaviors in the preschool and primar ears. In G. W. Albee and T. P. Gullotta (Eds.), *Primary prevention works* (pp.167-188). Thousand Oaks, CA: Sage.
Intervention Campaign Against Bully-Victim Problems (Universal)	Olweus, D. (1991). Bull /victim problems among school children: Basic facts and effects of an intervention program. In D. J. Pepler & K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 411-448). Olweus, D. (1993). *Bullying at school: What we know and what we can do*. Oxford: Blackwell. Olweus, D. (1994). Annotation: Bull ing at school: Basic facts and effects of a school based intervention program. *Journal of Child Psychology and Psychiatry, 35*, 1171-1190.
Linking the Interests of Families and Teachers (Universal)	Reid, J. B., Edd , J. M., Fetrow, R. A., & Stoolmiller, M. (1999). Description and immediate impacts of a preventive intervention for conduct problems. *American Journal of Community Psychology, 27*(4), 483-517.
Montreal Longitudinal Experimental Study (Indicated)	Trembla , R. E., Masse, L. C., Pagani, L., & Vitaro, F. (1996). From childhood aggression to adolescent maladjustment: The Montreal prevention experiment. In. R. DeV. Peters & R. J. McMahon (Eds.), *Preventing childhood disorders, substance abuse and delinquency* (pp. 268-298). Thousand Oaks, CA: Sage. Trembla , R. E., Vitaro, F., Bertrand, L., LeBlanc, M., Beauchesne, H., Boileau, H., David, L. (1992). Parent and child training to prevent earl onset of delinquenc : The Montreal longitudinal-experimental stud . In J. McCord & R. E. Trembla (Eds.), *Preventing antisocial behavior: Interventions from birth through adolescence* (pp. 117-138). New York: Guilford.

Peer Coping Skills Training (Indicated)	Prinz, R. J., Blechman, E. A., & Dumas, J. E. (1994). An evaluation of peer coping-skills training for childhood aggression. *Journal of Clinical Child Psychology, 23*, 193-203.
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Promoting Alternative THinking Strategies (Universal)	Greenberg, M. T., Kusche, C. A., Cook, E. T., & Quamma, J. P. (1995). Promoting emotional competence in school-aged deaf children: The effects of the PATHS curriculum. *Development and Psychopathology, 7*, 117-136. Greenberg, M. T., & Kusche, C. A. (1997). *Improving children's emotion regulation and social competence: The effects of the PATHS curriculum*. Paper presented at meeting of Societ for Research in Child Development, Washington, D.C. Greenberg, M. T., & Kusche, C. A. (1996). *The PATHS Project: Preventive intervention for children*. Final Report to the National Institute of Mental Health, Grant number R01MH42131. Greenberg, M. T., & Kusche, C. A. (1993). *Promoting social and emotional development in deaf children: the PATHS Project*. Seattle: University of Washington Press. Greenberg, M. T., & Kusche, C. A. (1998a). Preventive Intervention for School-Aged Deaf Children: The PATHS curriculum. *Journal of Deaf Studies and Deaf Education, 3*, 49-63. Greenberg, M. T., & Kusche, C. A. (1998b). *Promoting social competence and preventing maladjustment in school-aged children: The effects of the PATHS curriculum*. Manuscript submitted for publication. Conduct Problems Prevention Research Group. (1999b). Initial impact of the Fast Track Prevention trail for conduct problems: II. Classroom effect. *Journal of Consulting and Clinical Psychology, 67*, 648-657..
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Queensland Early Intervention and Prevention of Anxiety Project (Indicated)	Dadds, M. R., Holland, D. E., Laurens, K. R., Mullins, M., Barrett, P. M. & Spence, S. H. (1999). Earl intervention and prevention of anxiet disorders in children: Results at 2- ear follow-up. *Journal of Consulting and Clinical Psychology, 67*, 145-150. Dadds, M. R., Spence, S. H., Holland, D. E., Barrett, P. M., & Laurens, K. R. (1997). Prevention and earl intervention for anxiety disorders: A controlled trial. *Journal of Consulting and Clinical Psychology, 65*, 627-635.
Responding in Peaceful and Positive Ways (Universal)	Farrell, A. D., Me er, A.L., & White, K. (Under review). *Evaluation of Responding in Peaceful and Positive Ways (RIPP): A school-based prevention program for reducing violence among urban adolescents*.
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The full text of the report, "Preventing Mental Disorders in School-Aged Children: A Review of the Effectiveness of Prevention Programs" is available via the internet at: http://www.psu.edu/dept/prevention.

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